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HEALTH AND SAFETY REQUIREMENTS FOR EXISTING SCHOOL BUILDINGS.

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HEALTH AND SAFETY CONSIDERATIONS FOR EXISTING SCHOOL BUILDINGS HAVE BEEN DEVELOPED, BASED ON REGULATIONS OF THE STATE OF NEW YORK. MAIN AREAS OF CONSIDERATION INCLUDE--(1) EXITS, (2) HARDWARE, (3) STAIRWAYS, (4) SMOKE AND FIRE CONTROL, (5) HEATING AND VENTILATING, (6) SANITARY FACILITIES, AND (7) ELECTRICAL. RECOMMENDATIONS INCLUDE MATERIAL AND EQUIPMENT SPECIFICATIONS AND BUILDING DIMENSIONS. (MM)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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THE UNIVERSITY OF THE STATE OF NEW YORK
The State Education Department
Albany, New York 12224

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HEALTH AND SAFETY REQUIREMENTS FOR EXISTING SCHOOL BUILDINGS

The following health and safety considerations for existing school buildings, based on the Regulations of the Commissioner of Education and requirements of the Division of Educational Facilities Planning, form the basis for review and evaluation of existing buildings. These requirements form Part IX - Existing Buildings - of the Manual of Planning Standards of this Division.

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PART IX

EXISTING BUILDINGS

S901 GENERAL

a. Pursuant to the provisions of Section 409 of the Education law, in order to insure the health and safety of pupils in relation to heating, lighting, ventilation, sanitation and health, and fire and accident protection, all school buildings of school districts other than city school districts of cities having 125,000 inhabitants or more shall meet the following requirements, unless exceptions are granted in writing:

b. Existing buildings are classified as Class "A", "B" or "C" construction as defined by the Local Finance Law. See Appendix IIIA.4 and "construction classification", pg. A.2 of Glossary.

S902 CORRIDORS

a. Corridors and passageways shall be kept clear and free of obstructions at all times.

b. Corridor pockets (deadend conditions) shall be restricted to a depth of 1½ times the width of the pocket or to 1½ times the width of the corridor, whichever is less. Doors within such pockets must be at least 15 feet from the top riser of a stairwell. See Section 907-1.a.

S903 EXITS

S903-1 General

a. There shall be at least two means of egress remote from each other leading from each floor of pupil occupancy for all school buildings, so that when a pupil enters into a corridor from a room of pupil occupancy, he shall have a choice of two unobstructed means of egress in different directions. See EXIT, Appendix 1, Glossary & Definitions.

b. Fixed and movable gates shall not be located so that they create deadend conditions for occupied spaces when gates are in use. Such gates shall not be used during school hours.

c. Exiting through adjacent spaces within a building, other than corridors, will not be allowed unless specifically approved.

d. See Section 903-3 for Escape Window Requirements.

e. Folding and rolling partitions and sliding or overhead doors are not considered as exits.

S903-2 SPACES OF PUPIL OCCUPANCY

a. Every space of pupil occupancy over 500 square feet (not including places of assembly) shall have two separate means of exit from the space, in addition to the requirements of Section 903-1 a. The primary exit shall be an exit door opening to a corridor or a door leading directly to the outside. The second exit may be a door opening to a separate corridor which does not intersect the primary exit corridor, a door directly to the outside, a window of such size and design as to permit egress to the outside, or a door providing egress through adjacent spaces, where specifically approved.

b. Rooms under 1500 square feet: Where distance of travel from any point in the room exceeds 50 feet to an exit door, a second door remote from the other shall be provided.

c. Rooms over 1500 square feet shall have two exit doors remote from each other. A pass door in an overhead garage type door can be counted as a second exit.

d. In large classrooms divided into two or more separate areas by means of movable partitions, each divided area shall have its own exits which shall be remote from each other.

e. See Section 903-3, Escape Windows.

Note: See Appendix 1, page A.2 for definitions of building classifications.

S903-3 ESCAPE WINDOWS

a. Emergency escape windows as required in Section 903-2 shall be a designated window of such size and design as to permit and facilitate emergency egress through it. Such windows shall be free of obstructing screens or storm sash.

b. The minimum clear opening area for such windows shall be six square feet. The minimum dimension shall be 24 inches.

c. Double hung, casement and sliding windows are generally satisfactory types of escape windows.

S903-4 PLACES OF ASSEMBLY

a. Maximum occupancy for existing places of assembly (re: S104-2) shall be based on the number and size of existing approvable exits, on the basis of 50 persons for each 11 inches of clear exit width (½ exit unit). See Table 104-2d.

b. In appropriate instances, as directed by the Commissioner, signs restricting the number of occupants shall be conspicuously posted at each exit location.

Signs shall read (in red letters on white background):

MAXIMUM OCCUPANCY	line 1
Not to Exceed	line 2
_____ PERSONS	line 3

Lines 1 and 3 shall be letters not less than 4½ inches high and strokes not less than 3/4 inches wide.

S903-5 COURTS

a. Courts which have their perimeters completely enclosed are considered potential areas of pupil occupancy.

b. Courts of less than 3,000 square feet but more than 700 square feet area shall have at least two exits, remote from each other, equipped with classroom function hardware operable from the court, and with doors swinging in direction of egress.

c. Courts of more than 3,000 square feet area shall be exited on the basis of one person per 20 square feet area, (one exit unit per 2,000 square feet) with a usual maximum of six exit units required. Exits shall be remote from each other, equipped with panic hardware operable from the court, and with doors swinging in the direction of egress.

d. Where security is a problem, it is suggested that installation of an automatic alarm system be considered.

S903-6 EXIT SIGNS

a. School buildings of from one to six classrooms shall be provided with exit signs showing the word "EXIT" in legible letters not less than 4½ inches high and strokes not less than 3/4 inches wide.

b. See Exit Lights, Section S913-3.

S904 HARDWARE

S904-1 Classroom Doors

a. All classroom door hardware and hardware on doors of spaces of pupil occupancy shall be a type which will always permit the door to be opened from the inside without the direct manipulation of any type of locking device.

S904-2 Panic Hardware

a. All exterior and interior exit doors from all places of assembly exceeding 1800 square feet shall have panic hardware except that panic hardware is not required for push-pull interior doors from places of assembly and vestibules if these doors have non-locking hardware.

b. All exterior corridor doors shall have panic hardware except those serving less than three classrooms or service areas (such as a boiler room, kitchen or storage room).

c. Hardware on exit doors not requiring panic hardware shall be as Section 904-1.

d. Exit doors shall not be locked or chained or otherwise rendered inoperable from the inside at any time.

S905 FIRE DOORS

a. The following requirements for fire doors pertain only to interior doors leading from spaces mentioned.

b. In Class "A" Construction:

1. "B" Label construction self-closing doors are required on:

Boiler or heater rooms
Mechanical equipment rooms
Basement storage rooms and flammable liquid storage
Incinerator rooms
Transformer vaults
Openings from basements and other lower level areas to ground or first floor (See S907-1-d).

2. "C" Label construction doors are required on projection booths and stair enclosures.

S906 STAIRWAYS

S906-1 General

a. There shall be at least two means of egress remote from each other from each floor having pupil occupancy, including basements.

b. There shall be no storage under any stairs or landings.

S906-2 Handrails and Rails

a. Continuous handrails shall be provided on at least one side of stairways. For stairways 88 inches (or more) wide, one (or more) center handrail is recommended.

S906-2 b. Height of handrails above and in line with risers should be 2'-2" to 2'-8", depending upon the age of the pupils.

c. Balustrades for both interior and exterior stairs shall be provided. 3'-6" above and in line with risers and 3'-9" above the finished floor of their platforms is the usual height.

S906-3 Fire Escapes

a. Fire escapes of approved design shall be installed where other exits are determined to be inadequate for fire safety (see Appendix IV c).

S907 SMOKE AND FIRE CONTROL

S907-1 General

a. Spaces of pupil occupancy in Class "A" buildings that are beyond stairs and do not have two optional directions of travel at the classroom door may have a door at least 15 feet and not more than 20 feet beyond the top riser of a stairway, providing the following conditions are met:

1. The corridor pocket is in accord with Section 902-b, OR

2. Each space of pupil occupancy beyond the stairs shall be provided with direct exit to the outside, OR

3. The building is provided with automatic sprinkler system of approved design or an automatic smoke and fire detection system of approved design, OR

4. The stairways of the building shall be provided with enclosures to control the spread of smoke and fire, AND

5. In appropriate instances, alternate means of egress through approved adjacent spaces may be required.

b. In Class "B" and Class "C" buildings of two stories or more, stairways shall be provided with enclosures to control spread of smoke and fire, OR each space of pupil occupancy shall be provided with direct exit to the outside. In appropriate instances, alternate means of egress through approved adjacent spaces may be required.

c. Class "B" and Class "C" buildings shall not have places of assembly above the first floor, except where it is determined that adequate exits are provided in a Class "B" building, a written exception may then be granted.

d. In appropriate instances doors, walls and ceilings of exitways (corridors, stairs, vestibules, etc.) may be required to be finished with fire-retardant materials or coatings.

e. Floor levels below the first or principal floor levels should be closed off from the levels above by enclosures to control the spread of smoke and fire (see S907-1-a and b).

f. Wood floors shall not be treated or finished with oil. Floors previously so finished shall be cleaned and refinished with a penetrating seal.

g. In appropriate instances, stairway exit enclosures, in addition to those required above, may be required.

A907-2 Stairway Enclosures

a. Stairway enclosures, where required, shall be constructed of materials and doors, of such design as to close off each floor to control the spread of smoke and fire.

1. Stairway enclosure doors shall be designed to be kept normally closed and shall not be secured in an open position. Doors shall bear signs reading "Fire Door - Keep Closed" in letters not less than 3" high.

2. Stairway enclosure doors may be held open if an automatic release device is provided and so arranged that detection of smoke and/or fire, and/or setting off the building alarm system will cause an interruption so that the doors will be released and will close.

b. Enclosures closing off floor levels below first or principal floor levels shall be of non-combustible construction.

S907-3 Fire Extinguishers

a. Fire extinguishers shall bear the Underwriters Label and shall be at locations such that no point in a corridor, lobby or stairs shall be more than 100 feet from an extinguisher.

b. Extinguishers shall also be placed convenient to the stage of the auditorium, in shops, cafeteria-kitchens, boiler rooms, chemistry laboratories, incinerator rooms and in other places which can be considered potential sources of fire.

S907-4 Miscellaneous Spaces

a. Boiler or heater rooms, fuel rooms, transformer vaults, incinerator rooms and similar spaces shall have walls, doors, floors and ceilings of at least two hour fire-rated construction in Class "A" construction, or of at least one hour fire-rated construction in Class "B" and "C" construction, except those spaces having roof construction over the entire area may have the ceiling/roof of fire-resistive construction.

b. Walls and ceilings of basement storage rooms shall be at least one hour fire-rated construction. Combustible attic spaces shall not be used for storage.

c. All areas for the storage of gasoline-powered equipment and/or flammable liquids shall be separated from the rest of the school building by at least one hour fire-rated construction and self-closing "B" Label doors with no hold-open devices.

NOTE: One hour fire-rated construction may be obtained generally by using 2 x 4 wood studs, 16" on center, fire-stopped; finished each side with one layer of 5/8" Underwriter's Laboratories rated gypsum board with nails at 6" spaces and with 1 1/8" penetration. Underwriter's rated Class "B" doors are necessary for this rating.

NOTE: Two hour fire-rated construction may be obtained generally by two layers each side of 5/8" Underwriter's Laboratories rated gypsum board with construction as above. Underwriter's rated Class "B" doors are necessary for this rating.

d. Auditoriums and stages: all curtains, fittings and draperies shall be fireproofed at regular intervals so as to assure fire safety. Finishes of all surfaces on stage shall be fire resistive.

S908 HAZARDOUS GLASS AREAS

a. In exterior exit doors and vestibule-doors, main interior exit doors and in adjoining sidelights or glass panels, if the glass panel extends within 48 inches of the floor, it shall be of a minimum of one quarter inch thick wire, tempered plate or laminated safety glass.

b. Glass panels, if within 18 inches of the floor, shall be a minimum of one quarter inch thick wire, tempered plate or laminated safety glass.

S909 MECHANICAL STANDARDS

a. All mechanical and electrical equipment should meet the standards and bear the label of recognized testing agencies, such as the Underwriter's Laboratories. This is especially important for all boiler, burner and automatic combustion flame safeguard controls. All pressure vessels shall be constructed according to A.S.M.E. Standards.

b. All mechanical and electrical installations should meet the requirements of the American Standards Association and National Board of Fire Underwriters as listed in the Appendix II.

S910 HEATING AND VENTILATING

S910-1 General

a. All heat producing equipment shall be such as to insure safe operation.

b. All primary controls for boilers and burners shall operate on a 120 volt, single phase, grounded circuit. These controls will normally include the hold-in coil of the motor starter, the solenoid coil for the pilot valve, the solenoid coil for the main fuel valve or the actuator for the motorized fuel valve, the ignition transformer and the modulator transformer. Electronic flame safeguard controls shall normally respond in 2-4 seconds to cut off the fuel through the main fuel burner valve.

c. It is highly recommended that the following be accomplished, if not already inherent in the burner installation:

1. Wire the conductor in the primary control which energizes the main fuel valve through the auxiliary contact of the burner motor starter (providing the auxiliary contact is available).

2. Provide for guaranteed low fire start if system has modulation.

3. Provide a high pressure limit for steam systems and a high temperature limit for hot water. Manual reset types are preferable. (The operating control which calls for heat is not a limit switch.)

4. Provide manual reset low water cutoffs for steam and hot water boilers.

5. Provide for purging of the combustion chamber where primary, forced or induced draft fans are present.

6. Provide a constant, positive supply of clean combustion air for burners. Provide ventilation where temperature in boiler room is excessive.

7. High voltage and low voltage wires shall not be run in the same conduit.

8. Wires to flame sensing devices should be run in a conduit carrying only these wires.

S910-2 Direct Fired Heating Units

a. Direct fired fuel burning heating units, such as self-contained heaters or heating and ventilating furnaces, shall not be installed in any classroom or space of pupil occupancy.

S910-3 Unused Duct Work

a. Unused duct work shall be sealed off at each floor level with incombustible material.

S911 SANITARY FACILITIES

a. Every school building shall be provided with a supply of safe, potable water for drinking purposes dispensed through approved sanitary drinking fountains.

b. Every school building shall be provided with separate toilet rooms for boys and girls, with flush toilets and wash basins connected to an adequate water supply under pressure and a sewage disposal system, if a public sewer is not available.

c. No source of water supply nor sewage disposal system shall be used without the approval of the State Department of Health.

S912 GAS

a. Gas entering a school building shall be at ½" psig (pressure) or less.

b. Gas within school buildings should comply with Part VII "Gas Facilities" of this Manual.

S913 ELECTRICAL

S913-1 General

a. Electrical work shall conform to the requirements of the National Electrical Code, NBFU Pamphlet No. 70.

b. Electric devices and materials shall meet the requirements of Underwriter's Laboratories.

c. School buildings shall be provided with sufficient and suitable artificial light to conduct the school activities in the absence of natural light (see Table S805-1 for recommendations).

S913-2 Emergency Lighting

a. An automatic emergency lighting system is required for any place of assembly exceeding an area of 1,800 square feet and for all exits leading from such areas. Usual areas are as follows:

Auditoriums	Large Group Instruction Rooms
All-Purpose Rooms	Other Combined Places of Assembly
Cafeterias	Playrooms
Gymnasiums	Swimming Pools

S913-3 Exit Lights

a. For school buildings of over seven classrooms, exit lights shall be provided in auditoriums, assembly halls, gymnasiums, stairways, corridors and exits with illuminated signs showing the word "EXIT" in plainly legible letters not less than four and one-half inches high and with the strokes of each letter not less than three-quarters of an inch in width.

b. Exit sign circuiting shall be on a separate and segregated circuit wired to minimize the possibility of interruption.

c. See Exit Signs, Section 903-6.

S913-4 Fire Alarms

a. One-story school buildings of one to six classrooms shall be equipped with a manually operated fire alarm (which may be electric and may include automatic smoke and/or fire detection) capable of being sounded for such a period of time as to insure the evacuation of all occupants of the building.

b. School buildings of seven classrooms or more, or multi-storied buildings, shall be equipped with a manually operated electric fire alarm (which may include automatic smoke and/or fire detection) which will continue to sound the alarm until the tripped station has been restored to normal operation, or has completed a cycle of not less than 30 seconds.

c. Every school building in any city, village, town or fire district having a general fire alarm station and an electrically operated fire alarm system, shall be equipped with a municipal fire alarm box (located on the site or on the school building) of the same type and character used in such city, village, town or fire district. Wherever practical, the internal fire alarm system of a school building shall be connected with the general fire alarm system so that the setting off of the school internal fire alarm system automatically gives the alarm to the fire department affording protection to the school.

S913-5 Telephone

a. All buildings having pupil occupancy shall be equipped with a telephone which can be used in an emergency.